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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,113	03/19/2001	Gabriele Nelles	450117-03033	2990
20999	7590	03/29/2004	EXAMINER	
FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			HON, SOW FUN	
			ART UNIT	PAPER NUMBER

1772

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

09/744,113

Applicant(s)

NELLES ET AL.

Examiner

Sow-Fun Hon

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 24 February 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 4 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☒ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☒ they raise the issue of new matter (see Note below);
- (c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See attachment to advisory action.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: None.

Claim(s) objected to: 80,92 and 95.

Claim(s) rejected: 74-79,90,91,93,94,96 and 97.

Claim(s) withdrawn from consideration: 1-29 and 52-73.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☒ Other: Attachment to advisory action

Advisory Action

1. The proposed amendment will not be entered because they raise the issue of new matter, and new issues that would require further consideration and search for the reasons set forth below.
2. The amendment does not comply with the requirements of 37 CFR 1.121(c) because the withdrawn claims must include the text next to the status.
3. The proposed amendment of claim 1 now recites a Markush group of an alignment layer comprised of a mono- or multi-layer of liquid crystal material, or a combined alignment layer comprised of at least one azosilane or of a polymeric material selected from the group consisting of polyester, polypeptide, polyacrylamide, polyvinylalcohol, polyacrylate, polymethacrylate, polyurea and polyamide. The scope of the claim has changed. In the previously presented claim, there was a clear recitation of "a mono or multilayer of liquid crystal material on said at least one alignment layer". The specification states that the invention has two embodiments, one being an alignment layer with a mono or multilayer of liquid crystal material on the alignment layer, the other being a combined alignment layer (Page 8, 2nd paragraph, substitute specification filed 01/18/01). There does not appear to be a recitation of a mono- or multilayer of liquid crystal as an alignment layer in the specification, thus raising the issue of new matter.
4. The combined alignment layer is not well defined in the specification. The recitation of "The combined alignment layer that can be used instead of the *separated* alignment layer and liquid crystal layer" (Page 7, 4th paragraph, substitute specification filed 01/18/01) implies that the combined alignment layer is some combination of the alignment layer and the liquid crystal layer with no clear demarcation between the alignment layer and the liquid crystal layer, which

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means that there is liquid crystal in the combined alignment layer, at the very least, if not some form of layered structure involved. There are prior art hybrid alignment layers which have liquid crystal moieties covalently attached to non-liquid crystal polymeric alignment material.

5. Applicant argues that Georger, either alone or in combination, fails to teach neurite outgrowth. Applicant is respectfully apprised that Georger does indeed specifically teach neurite outgrowth ('628, column 5, lines 15-20).

Furthermore, Applicant is respectfully reminded that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

6. Applicant argues that Georger does not disclose or suggest liquid crystalline material as a separate layer or in a combined layer. Applicant is respectfully apprised that liquid crystal is indeed taught as a transducer on which a single (neuron) cell is located ('628, column 10, lines 40-65).

7. Applicant argues that Kawata fails to teach the orienting neurite outgrowth, or the instantly claimed substrate structure, and that there is no motivation to combine the teachings of Kawata with that of Georger.

Applicant is respectfully reminded that Kawata teaches that the alignment defect for an alignment layer formed with the azobenzene chromophore is lower than one formed without

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(‘113, column 17, lines 1-50). Both Kawata and Georger are directed to a film for alignment on a substrate, and are thus analogous art. Therefore it would have been obvious to one of ordinary skill in the art to have used the azobenzene sidechain liquid crystalline polyester taught by Kawata as the alignment surface with microtrenches in the invention of Georger in order to obtain a substrate structure for neurite outgrowth with higher alignment precision due to lower alignment defect.

8. Applicant argues that Grainger only mentions antibodies that are attached to the polymeric article and can thus be used in analytical techniques, such as immunoassays, which is not cell growth.

Applicant is respectfully apprised that Grainger does teach that the polymer is bound across the surface of a substrate in a predetermined alignment (pattern) as points of attachment for cell growth (‘549, column 15, lines 10-20) thus acting as an alignment layer on the substrate for cell growth.

9. Applicant argues that neurite outgrowth is different from cell growth in that neurite outgrowth is the formation and extension of a neuron by way of neurites, the term neurite relating to the combination of axon and dendrites.

Applicant is respectfully apprised that the primary reference Georger does teach neurite outgrowth as discussed above. Grainger is the secondary reference which teaches that the polymer is bound across the surface of a substrate in a predetermined alignment (pattern) as points of attachment for cell growth (‘549, column 15, lines 10-20), thus acting as an alignment layer on the substrate for cell growth. The conditions for cell growth are necessary for neurite


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outgrowth. Hence there is motivation to combine and expectation of success present in the prior art.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sow-Fun Hon
03/10/04


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1/1/2

3/11/04